



A.D. 1868, 18<sup>th</sup> JUNE. N<sup>o</sup> 1974.

SPECIFICATION

OF

JOHN LUMLEY AND EDWIN LUMLEY.

PILL MACHINE.

LONDON:

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1868.





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A.D. 1868, 18<sup>th</sup> JUNE. N° 1974.

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### Pill Machine.

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**LETTERS PATENT** to John Lumley and Edwin Lumley, both of Kirk Hammerton, in the County of York, for the Invention of “**AN IMPROVED MACHINE FOR THE MANUFACTURE OF PILLS.**”

Sealed the 15th December 1868, and dated the 18th June 1868.

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**PROVISIONAL SPECIFICATION** left by the said John Lumley and Edwin Lumley at the Office of the Commissioners of Patents, with their Petition, on the 18th June 1868.

We, JOHN LUMLEY and EDWIN LUMLEY, both of Kirk Hammerton, in  
5 the County of York, do hereby declare the nature of the said Invention  
for “**AN IMPROVED MACHINE FOR THE MANUFACTURE OF PILLS,**” to be as  
follows:—

The novelty of this Invention consists of an improved mechanical  
combination of parts into a machine adapted for making pills in a more  
10 speedy and certain manner than by the machines at present employed  
for that purpose.



*J. & E. Lumley's Improved Pill Machine.*

The following is an example of the construction of the machine:—A suitable framing supports three rotating cylinders having grooves formed around their peripheries. Two of the aforesaid cylinders are employed to conduct the mass of ingredients into the machine and partly divide it lengthwise, the said cylinders being of equal diameters, the mass then 5 passes under a knife which is worked by the third cylinder, the diameter of which is about four times that of the aforesaid smaller cylinders. An adjustable curved guide piece is also adapted to the larger cylinder, grooves being formed in the said guide piece corresponding with the grooves in the cylinder. The knife after having entirely divided the 10 mass crosswise conducts it between the guide and the cylinder, and thus ensures its being taken hold of thereby and rolled into pills which fall into a receptacle. Combs are adapted to the grooves of the cylinders for preventing clogging thereof, and the spindle of the larger cylinder may have a fly wheel fixed thereon, into which a handle may be fixed for 15 imparting rotatory motion to the machine.

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**SPECIFICATION** in pursuance of the conditions of the Letters Patent, filed by the said John Lumley and Edwin Lumley in the Great Seal Patent Office on the 18th December 1868.

**TO ALL TO WHOM THESE PRESENTS SHALL COME**, we, JOHN 20 LUMLEY and EDWIN LUMLEY, both of Kirk Hammerton, in the County of York, send greeting.

**WHEREAS** Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Eighteenth day of June, in the year of our Lord One thousand eight hundred and sixty-eight, in the thirty-first 25 year of Her reign, did, for Herself, Her heirs and successors, give and grant unto us, the said John Lumley and Edwin Lumley, Her special licence that we, the said John Lumley and Edwin Lumley, our executors, administrators, and assigns, or such others as we, the said John Lumley and Edwin Lumley, our executors, administrators, and assigns, should at 30 any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for “**AN IMPROVED MACHINE FOR THE MANUFACTURE OF PILLS,**” 35



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*J. & E. Lumley's Improved Pill Machine.*

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upon the condition (amongst others) that we, the said John Lumley and Edwin Lumley, our executors or administrators, by an instrument in writing under our, or their, or one of their hands and seals, should particularly describe and ascertain the nature of the said Invention, 5 and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent.

**NOW KNOW YE**, that we, the said John Lumley and Edwin Lumley, 10 do hereby declare the nature of the said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement, that is to say :—

The novelty of this Invention consists of an improved mechanical combination of parts into a machine adapted for making pills in a more 15 speedy and certain manner than by the machines at present employed for that purpose.

The following is an example of the construction of the machine :—A suitable framing supports three rotating cylinders having grooves formed around their peripheries. Two of the aforesaid cylinders are employed 20 to conduct the mass of ingredients into the machine and partly divide it lengthwise, the said cylinders being of equal diameters, the mass then passes under a knife which is worked by the third cylinder, the diameter of which is about double that of the aforesaid smaller cylinders. An adjustable curved guide piece is also adapted to the larger cylinder, 25 grooves being formed in the said guide piece corresponding with the grooves in the cylinder. The knife after having entirely divided the mass crosswise conducts it between the guide and the cylinder, and ensures its being taken hold of thereby and rolled into pills which fall into a receptacle. Combs are adapted to the grooves of the cylinders for 30 preventing clogging thereof, and the spindle of the larger cylinder may have a fly wheel fixed thereon, into which a handle may be fixed for imparting rotatory motion to the machine.

And in order to explain our said Invention more completely we now proceed to describe the best means we are acquainted with for carrying 35 the same into practical effect, reference being had to the illustrative Sheet of Drawings accompanying these Presents, and to numeral figures and letters of reference marked thereon respectively, as follows :—



*J. & E. Lumley's Improved Pill Machine.*

## DESCRIPTION OF THE DRAWING.

Figure 1 represents an elevation of the front of the machine without the fly wheel; Figure 2, an elevation of the back of the said machine; Figure 3, a top plan view thereof; Figure 4, a longitudinal and vertical section through the line A, B, at Figure 3; Figures 5 to 12 inclusive 5 represent detached views of parts herein-after particularly described and referred to. At each of the foregoing Figures we employ similar letters of reference to denote corresponding parts in so far as such parts appear or can be seen at each of such said Figures respectively.

A, A, marks the stand of the machine, to which are fixed the 10 standards B supporting the following parts or pieces:—C, D, E, are three cylinders having grooves formed around them and axes working in holes, and adjustable bearings *a* formed in and fitted to the standards B. The cylinders C and D are of the same diameter and have toothed wheels *b, b*, fixed on their respective axes for imparting 15 rotatory motion thereto in opposite directions by means of the stud *c*, toothed wheel G (fixed on the axis 1), and fly wheel H, as hereafter described. The stud *c* is fixed on one end of the axis *d* of the cylinder E, and upon the opposite end of the axis *d* a toothed wheel I is fixed, into which a pin *e* is fixed which takes into a 20 hole formed in a piece of metal K connected at its upper end to a pin *f* fixed in one end of a short lever *g*, whose fulcrum is a pin or screw at *h* fixed in the standard B. The opposite end of this lever is acted upon by studs *i* fixed in a wheel L; this wheel works loosely upon the axis 1, and has teeth formed upon its edge, as at Figures 1 25 and 5, the studs *i* in the wheel L coming into contact with the lever *g* and part 2 of the piece K produce alternate circular movement of the cylinder E after the teeth in the wheel L have become disengaged from the teeth of the wheel I, as shewn at Figures 1 and 5, the wheel L being moved in the direction denoted by the 30 arrow's flight. At these Figures M marks a double comb, shewn detached at Figure 12. This comb is held in position by the standards B, and is intended to take into the grooves of the cylinders C, D, to prevent clogging thereof with the ingredients of which the pills are to be made; N is a strap of metal pivoted by a pin 3 fixed 35 in a recess formed in the standard B. The opposite standard is also similarly fitted so as to leave the straps N flush with the face of



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*J. & E. Lumley's Improved Pill Machine.*

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the standards; the axis *d* has cam-shaped pieces 4 fixed thereon, the pieces 4 taking into the straps N, as at Figure 4, raise and lower the straps N and knife *k* connected thereto, as at 5, by its ends. The shape of this knife is shewn at Figure 11. O is a curved  
5 piece of metal with grooves formed on its inner surface and with pivots *l, l*, as shewn at Figure 10, which take into holes in the standards B; and P is an adjusting screw passing through a screwed hole in the piece *m*, which is pivoted by its ends in holes in the standards B. The use of the screw P is to cause the spring 6 to  
10 press slightly against the piece O. Q are screws and nuts for raising and lowering the bearings *a*, so as to adjust the cylinder C at any desired distance from the cylinder D to prevent the complete separation of the prepared sheet of ingredients as it passes between them. The fly wheel H has a handle at R fixed into one of its arms  
15 for imparting rotatory motion to the several parts of the machine. The boss of the fly wheel fits on to a square formed on the outside of the boss 7 of the wheel L, which boss is formed on the said wheel, as at Figure 6, and the hole through the centre of the boss 7 fits loosely upon the axis 1 of the wheel D as before stated; S is a table to receive the  
20 sheet of ingredients from which the pills are to be made.

## OPERATIONS OF THE MACHINE.

The prepared sheet of ingredients being pressed against the cylinders C, D, upon motion being imparted to the wheel H these cylinders will receive rotatory motion through the medium of the wheels I  
25 and L, studs *i* and *c*, and wheels G and *b, b*, thereby advancing the sheet between the said cylinders and squeezing or rolling it into the shape exhibited at Figure 8 in cross section, and by the time the edge of the sheet has reached the cylinder E the knife *k* by the action of the cams 4 on the straps N will descend and cut or divide the sheet, as  
30 denoted by the dotted line at Figure 9, and the piece thus cut off will be taken hold of and drawn between the cylinder E and piece O, which will have the effect of entirely dividing or cutting the strip across, leaving each piece in its respective grooves in the cylinder E and piece O, and by this time the teeth of the wheel L being out of gear  
35 with the teeth of the wheel I the cylinder E will be moved in an opposite direction by the studs *i* coming against the lever *g* and lifting the piece K, thus turning the cylinder E partly round in an opposite direction, and when this stud comes into contact with the part 2 of



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*J. & E. Lumley's Improved Pill Machine.*

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the piece K it will depress it and move the wheel I in a reverse direction, and in this manner each stud will produce alternate circular motion of the cylinder E, producing a rubbing motion upon the partly shaped pills and rubbing them into a spherical form, after which the teeth of the wheel L gearing into the wheel I will cause the cylinder E 5 to rotate as before, and simultaneously with such movement the knife *k* is raised, the sheet advanced, cut off, and made into perfect pills as before, and so on in succession, the operator powdering the sheet to prevent adhesion thereof to the cylinders and other parts of the machine. The cylinder E should have a flat filed on it, as at 8, Figure 4, to allow 10 the sheet to come close against it whilst it is being cut or divided by the knife, and to ensure the divided strip being taken hold of by the cylinder E and advanced between it and the piece O.

Having now fully described and set forth the nature and object of our said Invention for “An Improved Machine for the Manufacture 15 of Pills,” together with the best means we are acquainted with for carrying the same into practical effect, we would remark in conclusion that we hereby declare our Invention to consist in and we claim, the mechanical arrangements and combinations of parts above described with reference to the accompanying Drawing as constituting “An Improved 20 Machine for the Manufacture of Pills.”

In witness whereof, we, the said John Lumley and Edwin Lumley, have hereunto set our hands and seals, this Fifteenth day of December, in the year of our Lord One thousand eight hundred and sixty-eight.

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JOHN LUMLEY. (L.S.)

EDWIN LUMLEY. (L.S.)

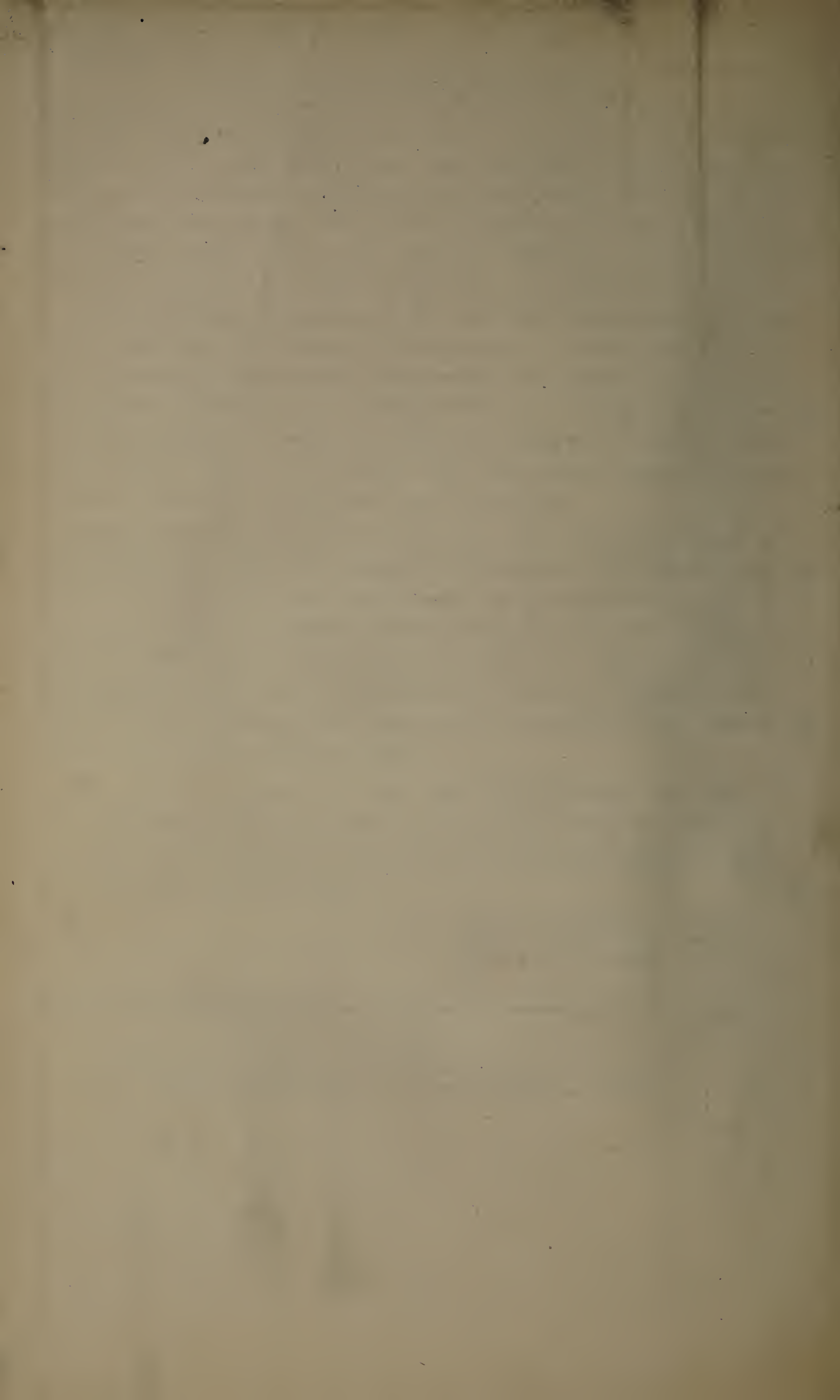
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LONDON:

Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,  
Printers to the Queen's most Excellent Majesty. 1868.









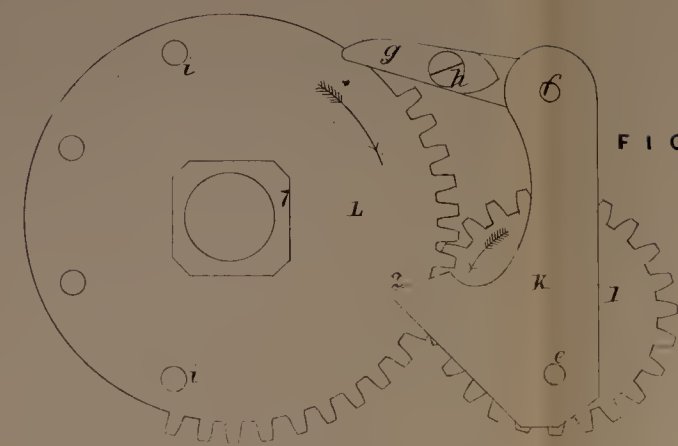


FIG. 5.

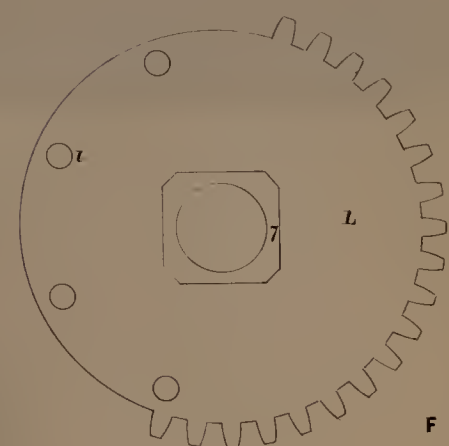


FIG. 6.

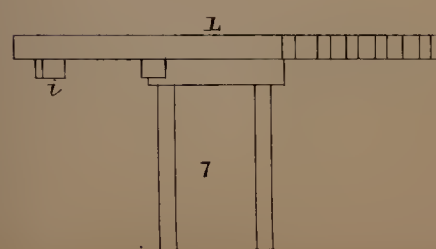


FIG. 7.

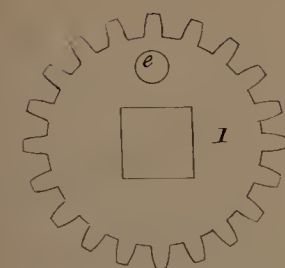


FIG. 8.

FIG. 9.

FIG. 1.

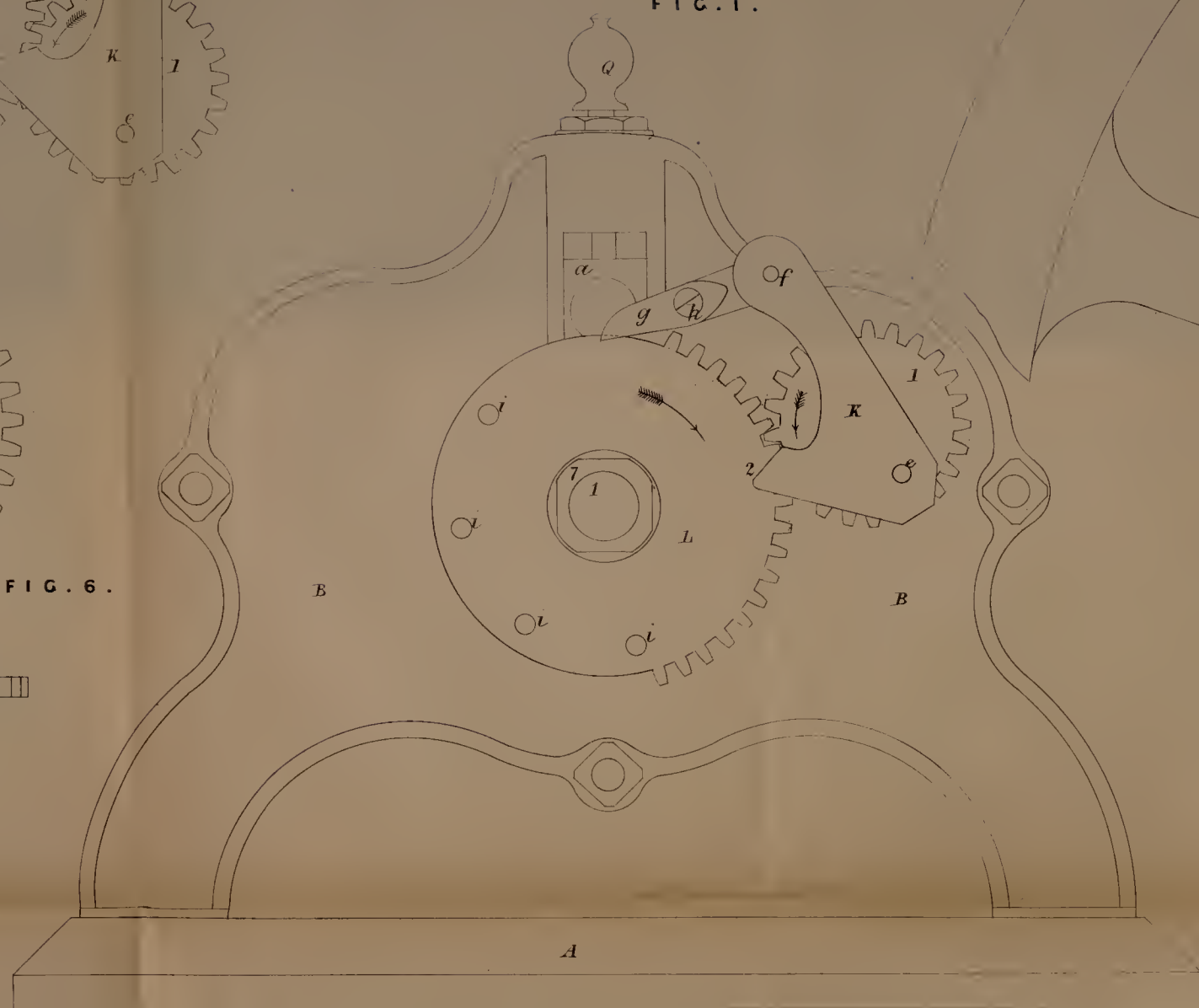


FIG. 3.

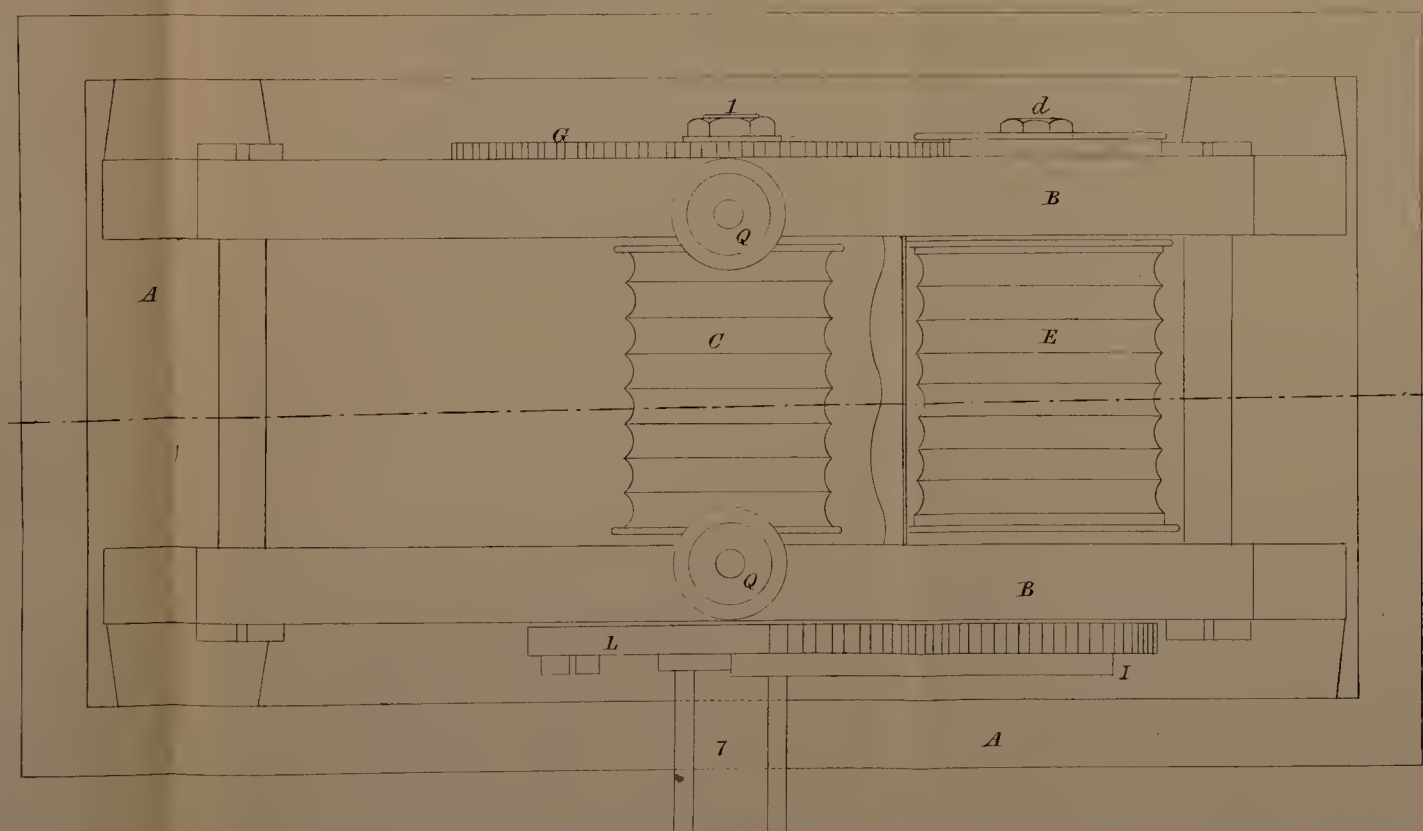


FIG. 2.

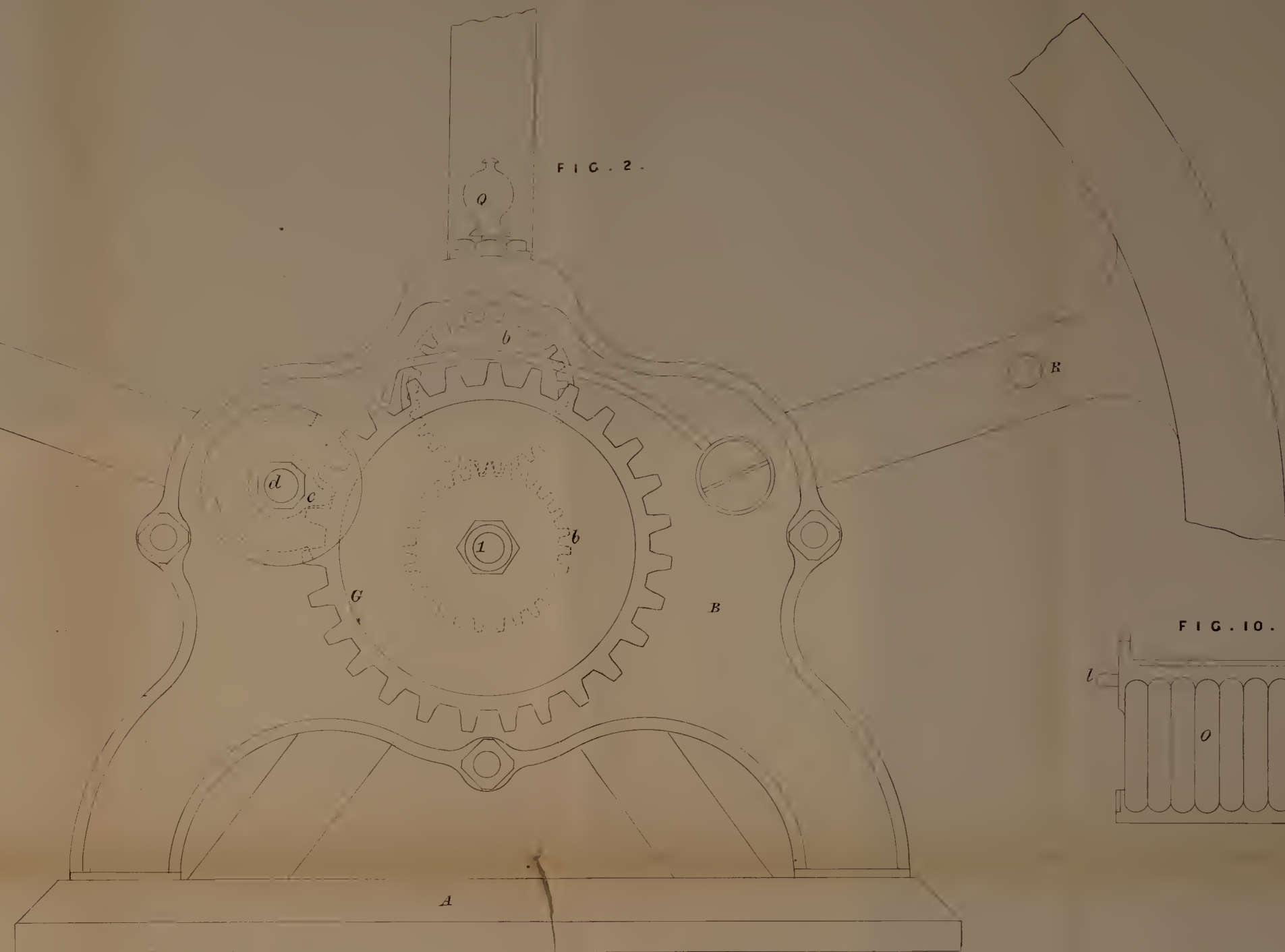


FIG. 10.

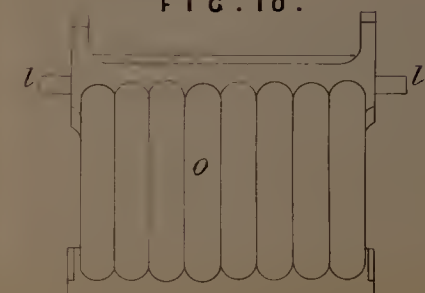


FIG. 11.

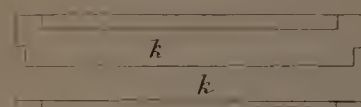


FIG. 12.

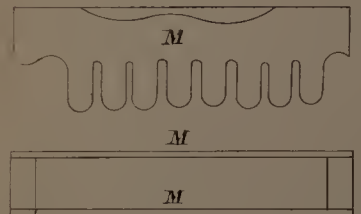


FIG. 4.

